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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,018	07/09/2003	Roland Albert	071308.0446	1121

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EXAMINER

KIM, CHONG HWA

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,018

Applicant(s)

ALBERT ET AL.

Examiner

Chong H. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-12, 14-16 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12, 14-16 and 18-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/1/05; 1/30/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is made in response to the IDS filed Dec 01, 2005 that is "crossed" in the mail with the previous Office action that was being prepared to be mailed on Dec 02, 2005. The IDS is deemed properly filed since the IDS was received before the Final Office action was mailed and with proper fee as set forth in 37 CFR 1.17(p). Furthermore, the IDS contains prior art that are pertinent to the substance of the subject matter in the present claims. Therefore, the Examiner withdraws the previous Office action and provides the following new grounds of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chia, U.S. Patent 4,868,349 and in view of Suzuki et al., U.S. Patent 6,414,867 B2.

Chia shows, in Figs. 1-5, a plastic control plate comprising:

a single piece body 31 having an opening with a bottom wall having at least a partially flat area;

a heat conduction metal body plate 19 having a top surface and a bottom surface, the plate at least partially integrated in the plastic control plate, wherein the heat conduction metal

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body plate top surface is flush with a top surface of the plastic plate and wherein the bottom surface rests at least partially on the bottom wall of the opening;

but fails to show at least one channel formed by the heat conduction metal body and the plastic body, and the heat conduction body being an aluminum plate.

Suzuki et al. shows, in Figs. 1 and 2, a control plate 1 comprising a single piece body 1 having an opening with a bottom wall having at least a partially flat area, plurality of channels 2 running through the control plate for carrying a cooling medium, a heat conduction metal body plate 104 at least partially integrated in the control plate arranged directly adjacent to the channel, wherein the bottom surface of the metal body plate rests at least partially on the bottom wall of the opening and wherein the at least one channel is formed by the heat conduction metal body and the integral body, wherein a flat area 105 of the heat conduction body is designed as a wall area of the channel, wherein the heat conduction body is designed in the form of a U, and wherein the inner sides of the U form wall areas of the channel.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the heat transfer method of Chia with the heat sink device as taught by Suzuki et al. in order to increase the heat transfer so that the over heating can be reduced thus increasing the life of the device.

As to the matter of the heat conducting body being an aluminum plate, it would have been obvious to make the heat conducting body with aluminum in Chia since the Examiner takes Official Notice of the equivalence of aluminum and copper for their use in the heat conducting material in the heat transfer art and the selection of these known material to form the heat sink of Chia would be within the level of ordinary skill in the art.

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3. Claims 1-5, 7-12, 14-16, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al., U.S. Patent 6,414,867 B2 in view of Chia, U.S. Patent 4,868,349 and in view of Baumel et al., U.S. Patent 5,966,291.

Suzuki et al. shows, in Figs. 1 and 2, an arrangement comprising a single piece control plate body 1 having an opening 5 with a bottom wall having at least a partially flat area, plurality of channels 2 running through the control plate for carrying a cooling medium, a heat conduction metal body plate 104 at least partially integrated in the control plate arranged directly adjacent to the channel, a substrate 103 carrying electronic components 102 of the gearbox control electronics system arranged directly on the upper surface of the heat conduction body, wherein the gearbox control electronics system is electronically contacted via a flexible circuit board, wherein the gearbox control electronics system is electronically contacted via a stamped-grid arrangement, which extends partially over the upper surface of the plastic control plate and partially over the upper surface of the heat conduction body, wherein the bottom surface of the metal body plate rests at least partially on the bottom wall of the opening and wherein the at least one channel is formed by the heat conduction metal body and the integral body, wherein a flat area 105 of the heat conduction body is designed as a wall area of the channel, wherein the heat conduction body is designed in the form of a U, wherein the inner sides of the U form wall areas of the channel.

but fails to show the control plate being plastic, the heat conducting plate being flush with the control plate, and the heat conduction body being an aluminum plate.

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As to the matter of the material of the control plate, Chia shows, in Figs. 1-5, a plastic control plate having a single piece body 31 having an opening with a bottom wall having at least a partially flat area to receive a heat conduction metal body plate 19.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the metallic material of the control plate of Suzuki et al. with the plastic material as taught by Chia in order to reduce weight of the device.

As to the matter of the conducting plate being flushed with the control plate, both Chia and Baumel et al. show the heat conducting plates 19 and 21, respectively, each having a top surface that is flushed with the plastic control plates 31 and 22, respectively.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the bulky gearbox control system of Suzuki et al. with the compacted control system as taught by Chia and/or Baumel et al. in order to reduce the size of the control device so that space and weight can be reduced.

As to the matter of the heat conducting body being an aluminum plate, it would have been obvious to make the heat conducting body with aluminum in Suzuki et al. since the Examiner takes Official Notice of the usage of aluminum material for its use in the heat conducting element in the heat transfer art and the selection of the known material to form the heat sink of Suzuki et al. would be within the level of ordinary skill in the art.

4. Claims 1-5, 7-12, 14-16, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertol, U.S. Patent 5,940,271 in view of Suzuki et al., U.S. Patent 6,414,867 B2 in view of Chia, U.S. Patent 4,868,349 and in view of Baumel et al., U.S. Patent 5,966,291.

Mertol shows, in Figs. 11 and 14, an arrangement comprising a single piece plastic control plate 11, an aluminum heat conduction body 8 partially integrated in the plastic control plate, a substrate 2 carrying electronic components arranged directly on the upper surface of the heat conduction body, wherein the control electronics system is electrically contacted via a flexible circuit board, but fails to show the surfaces of the plastic control plate and the heat conduction body being flushed, the heat conduction body forming a U shape wall to form a cooling fluid channel, and the control circuit being a gearbox control circuit.

As to the matter of the surfaces being flushed, both Chia and Baumel et al. show the heat conducting plates 19 and 21, respectively, each having a top surface that is flushed with the plastic control plates 31 and 22, respectively.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the control system of Mertol with the compacted control system as taught by Chia and/or Baumel et al. in order to reduce the size of the control device so that space and weight can be reduced.

As to the matter of the cooling fluid channel, Suzuki et al. shows, in Figs. 1 and 2, an arrangement comprising a single piece control plate body 1 having an opening 5 with a bottom wall having at least a partially flat area, plurality of U-shaped channels 2 running through the control plate for carrying a cooling medium, a heat conduction metal body plate 104 at least partially integrated in the control plate arranged directly adjacent to the channel, wherein the bottom surface of the metal body plate rests at least partially on the bottom wall of the opening and wherein the at least one channel is formed by the heat conduction metal body and the integral body, wherein a flat area 105 of the heat conduction body is designed as a wall area of

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the channel, wherein the heat conduction body is designed in the form of a U, wherein the inner sides of the U form wall areas of the channel.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the heat sinking device of Mertol with the fluid cooled heat sinking device as taught by Suzuki et al. in order to increase the heat transfer via the heat sink so that the electronic control circuit would last longer.

As to the matter of the gearbox control circuit, Suzuki et al. teaches that the electronic control circuit is utilized to control a gearbox in a vehicle.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the control circuit of Mertol to control a gearbox as taught by Suzuki et al. in order to provide a more effective and efficient control system so that gear shifting is smoother.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 7, and 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Control circuit having heat sink.

Nagase et al., U.S. Patent 6,483,185 B1

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Hellbruck et al., U.S. Patent 6,431,259 B2

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

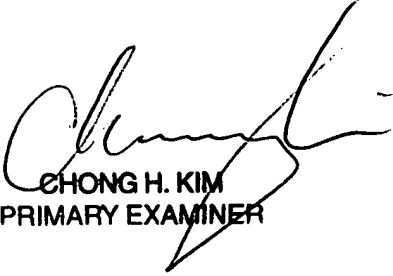
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (571) 272-7108. The examiner can normally be reached on Monday - Friday; 6:00 - 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chk
February 27, 2006



CHONG H. KIM
PRIMARY EXAMINER